

October 20, 2004

U. S. Nuclear Regulatory Commission  
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Subject: Duke Energy Corporation  
Oconee Nuclear Station, Units 1, 2, and 3  
Docket Nos. 50-269, 50-270, 50-287  
Response to Withdrawal of Request for Amendments (TAC NOS.  
MB5361, MB5362, and MB5363)

References: (1) Letter from Ronald A. Jones (Duke) to U. S. Nuclear Regulatory Commission, "Oconee Nuclear Station, Units 1, 2, and 3; Docket Numbers 50-269, 50-270, and 50-287; Withdrawal of License Amendment Request to Fully Credit the Standby Shutdown Facility and to Eliminate Crediting the Spent Fuel Pool to High Pressure Injection System Flow Path for Tornado Mitigation," dated September 9, 2004

(2) Letter from Leonard N. Olshan (NRC) to Ronald A. Jones (Duke), "Oconee Nuclear Station, Units 1, 2, and 3 - Withdrawal of Request for Amendments (TAC NOS. MB5361, MB5362, and MB5363)," dated September 22, 2004

In Reference 1, Duke Energy Corporation (Duke) withdrew a license amendment request (LAR) that proposed to revise the Updated Final Safety Analysis Report to eliminate crediting the Spent Fuel Pool to High Pressure Injection pump flow path as one of the sources of primary system makeup following a tornado event. In addition, the LAR proposed to fully protect the Standby Shutdown Facility (SSF) by hardening vulnerable areas of the West Penetration (WP) and Cask Decontamination (CD) room walls from tornado missiles.

By letter dated September 22, 2004 (Reference 2), the NRC requested that within 30-days of the letter, Duke provide its plans, including a proposed schedule, to the issues outlined in the letter. In the letter, the Staff noted that this additional information was necessary in order to determine whether the plans and actions to correct the tornado mitigation strategy would be appropriate and timely.

The primary reason for the withdrawal was attributed to cost estimate uncertainties associated with the hardening of the WP/CD room walls. These significant cost estimate increases rendered this option very unattractive due to its high cost and low risk benefit. As a result, it was decided to withdraw the current LAR and to place this modification "on hold" in order to work through all of the existing structure design limitations and to obtain more realistic implementation costs. The hardening of the WP/CD room walls remains an option, however, in conjunction with the modification, Duke is also evaluating the use

of the TORMIS methodology which, if found acceptable by the Staff, would significantly reduce the magnitude of the fortification required to harden the structure. NRC approval of the TORMIS option would be required prior to completion of the conceptual study (see proposed schedule in the enclosure).

Duke is also developing and considering options that would have a higher risk reduction benefit to cost ratio than the originally proposed changes. If possible, plant changes will be bundled to produce a significant reduction in risk across a number of design basis events. A list of options will be developed by mid-November 2004. See the "other options" column in the enclosure for additional information.

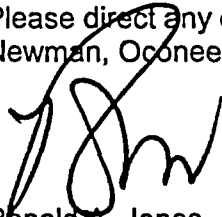
In addition, Duke's PRA group has continued to identify conservatisms and incorporate improvements to the PRA model since the original submission of the LAR in June 2002. Incorporation of these improvements have resulted in a decrease in the tornado core damage frequency (CDF) compared with the LAR results. Current PRA tornado results are consistent with the level of risk reported in earlier Rev. 2 Oconee PRA and Oconee IPEEE studies (specific details are given in the Enclosure). These activities further demonstrate Duke's continuing commitment and efforts toward improved nuclear safety and addressing uncertainties associated with the assessment of tornado risk. Oconee's current risk contribution is acceptably low with additional analysis improvements planned.

It is important to note that the original SFP-HPI flowpath white finding (subsequently closed as a result of the LAR submittal) was limited to a Unit 1 reactor coolant pump (RCP) seal LOCA event. This condition also existed for Units 2 and 3, but because these RCP seals had already been upgraded with more reliable seals, the NRC determined these findings to be green. Consequently, since the Unit 1 RCP seals were upgraded in late 2000, the risk condition associated with the white finding condition no longer exists. Therefore, Duke asserts that the unresolved issues associated with this function are of very low safety significance and do not warrant reopening the original white finding as a result of the LAR withdrawal.

Duke remains fully committed and focused on improving tornado defense-in-depth at Oconee and recognizes that clarifications to the current licensing basis will also be necessary to remove ambiguities. As such, Duke plans to discuss our current plans in more detail with the Staff at a meeting scheduled for November 16, 2004, and to provide periodic updates to the Staff, on a quarterly basis, as additional information becomes available.

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Please direct any questions or requests for additional information to Stephen C. Newman, Oconee Regulatory Compliance Group, at (864) 885-4388.

A handwritten signature in black ink, appearing to read 'RJ', is written over the text of the previous block.

Ronald A. Jones  
Site Vice President

Enclosure

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**Enclosure**

**Response to Withdrawal of Request for Amendments  
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I. NRC Review Issues

As described in the NRC's September 22, 2004 withdrawal letter (Reference 2), the issues raised during the Staff's LAR review are generally specific to the proposed change from the withdrawn amendment request. If applicable, these issues will be addressed in the subsequent LAR.

II. Proposed schedule

Date	Harden WP/CD Wall Option	WP/CD TORMIS Evaluation	Other Options
October 25 - November 5, 2004:			Comprehensive design basis review meeting
November 2004	RFQ submitted		
December 2004	Award study contract	Complete TORMIS analysis	Concepts presentation to plant mgmt.
January 2005			Concept approved by plant mgmt.
April 2005	Complete concept study	TORMIS LAR submitted	
July 2005			Feasibility study completed
March 2006	Detailed scoping and cost estimate completed		
June 2006	LAR submitted for this option		
July 2006			Detailed scoping and cost estimate completed
October 2006			LAR submitted for this option

III. Current Status of Tornado Risk:

Since the June 2002 LAR submittal, Duke has continued work on several important analysis improvements and physical plant upgrades. First, an updated Oconee tornado missile (TORMIS) model was developed to evaluate the missile damage frequency of the Unit 3 Control Room North Wall. This model update also incorporated a more detailed and less conservative treatment of the Borated Water Storage Tank (BWST) than used in the IPE model. This change resulted in a significantly lower estimate of the

BWST failure frequency (approximately a factor of 5 lower) as compared to earlier results presented to the Staff (Reference: Duke response to NRC Request for Additional Information, Question No. 3, dated January 29, 2003). Therefore, the perceived importance of the spent fuel pool to high pressure injection pump suction path has decreased significantly.

Second, Oconee has replaced its original Steam Generators with new replacement steam generators. Unit 1 replacement was completed in December 2003 and Unit 2 replacement was completed in June 2004. Unit 3 replacement outage began October 9, 2004 with completion expected in December 2004. Important improvements with the new steam generators are increased capacity to withstand compressive tube loads and additional secondary-side coolant volume. Updated thermal-hydraulic analysis has shown that the additional coolant volume provides significantly longer time to recover emergency feedwater or standby shutdown facility auxiliary service water (SSF ASW) prior to liquid relief on the pressurizer safety valves (or power operated relief valves), and more time prior to core uncover. This additional time has resulted in a significant reduction in the human error probabilities for recovery of the turbine-driven emergency feedwater pump (manual start) and recovery of secondary side heat removal using the SSF ASW system. This change produces a significant reduction in tornado CDF as well as overall plant CDF.

Third, Duke has also recently incorporated a human error dependency analysis model for the Oconee PRA. This was a major analysis effort that addresses a key PRA quality issue for the Oconee PRA identified in the Oconee PRA Peer Review. Incorporation of this methodology produces a higher overall CDF, but reduces a significant source of modeling uncertainty with earlier PRA results.

The overall effect of the changes described above is a net decrease in the Oconee tornado CDF. The current unit 3 tornado CDF is  $1.4\text{E-}05$  compared to the previous value of  $2.1\text{E-}05$  reported in the withdrawn LAR and a value of  $1.4\text{E-}05$  from Revision 2 of the Oconee PRA.

It is also noteworthy that additional risk reduction will be achieved in the Oconee PRA results by incorporating the Combustion Engineering Owners Group Seal loss-of-coolant model which is applicable to the current Oconee reactor coolant pump seal design. From recent discussions with the Staff on this subject, approval of this analysis methodology is nearly complete.